

# ANNUAL REPORT OF THE OHIO ACADEMY OF SCIENCE

1961

Organized 1891                      Incorporated 1892  
Affiliated with the American Association for the Advancement of Science

## OFFICERS AND COMMITTEES FOR 1961

### *President*

GUY-HAROLD SMITH

### *President-Elect*

KENNETH C. CASTER

### *Secretary*

GEORGE W. BURNS

### *Treasurer*

ROBERT M. GIESY, III

### *Director of Public Relations*

### *Executive Secretary*

KENNETH B. HOBBS

### *Director, Junior Academy*

GEORGE G. ACKER

### *Executive Vice-Presidents*

- |   |                                    |
|---|------------------------------------|
| A. Zoology: L. S. PUTNAM                | F. Geography: E. H. BUSH           |
| B. Plant Sciences: W. G. GAMBILL        | G. Chemistry: R. G. JOHNSTON       |
| C. Geology: JANE FORSYTH                | H. Science Education: PHYLLIS READ |
| D. Medical Sciences: E. W. E. SCHEAR    | I. Anthropology and Sociology:     |
| E. Physics and Astronomy: C. A. RANDALL | DWIGHT G. DEAN                     |
| K. Genetics: E. F. PADDOCK              | J. Conservation: R. B. REDETT      |

### *Membership Vice-Presidents*

- |  |                                      |
|--|--------------------------------------|
| A. Zoology: E. E. DICKERMAN            | F. Geography: WILLIAM HARRIS         |
| B. Plant Sciences: KNUT J. NORSTOG     | G. Chemistry:                        |
| C. Geology: FLOYD NAVE                 | H. Science Education: MILDRED BOWMAN |
| D. Medical Sciences: JOHN BARTONE      | I. Anthropology and Sociology:       |
| E. Physics and Astronomy: E. L. JOSSEM | J. K. BALOGH                         |
| K. Genetics: R. G. JAAP                | J. Conservation: E. E. GOOD          |

## COMMITTEES

### *Executive*

G.-H. SMITH, *Chm.*, G. G. ACKER, J. K. BALOGH, G. H. BROWN, G. W. BURNS,  
R. M. GIESY, R. A. POPHAM

### *Nominating*

MEMBERS OF THE EXECUTIVE COMMITTEE

### *Program*

EXECUTIVE VICE-PRESIDENTS AND THE SECRETARY, *Chairman*

### *Library*

*Academy Librarian*, MARY D. MCCOY, *Chairman*

W. G. GAMBILL.....Term expires 1963      JACOB VERDUIN.....Term expires 1965

### *Publications*

G. W. BURNS.....*Chairman*  
W. G. GAMBILL.....Term expires 1963  
JACOB VERDUIN.....Term expires 1965

### *Trustees of Research Funds*

E. H. CHERRINGTON, *Chm.* Term expires 1962  
R. Davidson.....Term expires 1963  
H. C. EYSTER.....Term expires 1964

THE OHIO JOURNAL OF SCIENCE 61(4): 242, July, 1961

*Necrology*

H. H. M. BOWMAN, *Chm.* Term expires 1962  
 W. C. STEHR Term expires 1963  
 J. T. MADDOX Term expires 1964

*Resolutions*

J. H. COOPER, *Chm.* Term expires 1962  
 A. LINDSCHIED Term expires 1963  
 W. SINGER Term expires 1964

*Ohio Flora*

T. R. FISHER, *Chairman*  
 E. L. BRAUN  
 J. A. HERRICK  
 G. W. BLAYDES  
 E. S. THOMAS  
 CLARA WEISHAUP

*Academy History*

R. W. DEXTER, *Chairman*

*Training and Certification  
of Science Teachers*

C. A. RANDALL, *Chairman*  
 E. H. BUSH  
 R. P. GOLDTHWAIT  
 E. E. GOOD  
 A. G. MCQUATE  
 J. SKILKEN  
 T. C. HOLYOKE

*Institution and Corporation Membership*

E. F. PADDOCK, *Chairman*  
 G. H. CROWL  
 S. N. HALLECK, II

*Academy Representatives*

- On the Joint Administrative Board of The Ohio Journal of Science:  
 W. G. GAMBILL Term expires 1963 JACOB VERDUIN Term expires 1965
- On the Council of the American Association for the Advancement of Science:  
 G. H. SMITH, G. H. BROWN (alternate)

*The Council for 1961-62*

ACKER, G. G.  
 BALOGH, JOSEPH K.  
 BARTONE, JOHN  
 BOWMAN, H. H. M.  
 BOWMAN, MILDRED  
 BROWN, GLENN H.  
 BURNS, G. W.  
 BUSH, EVERETT H.  
 CASTER, KENNETH C.  
 CHERRINGTON, E. H.  
 COASH, JOHN  
 COOPER, J. H.  
 DEAN, DWIGHT G.

DEXTER, R. W.  
 DICKERMAN, E. E.  
 EBLIN, LAWRENCE P.  
 FISHER, T. RICHARD  
 FORSYTH, JANE  
 GAMBILL, W. G.  
 GIESY, ROBERT  
 GOOD, E. E.  
 HARRIS, WILLIAM  
 JAAP, R. GEORGE  
 JOHNSTON, ROBERT G.  
 JOSSEM, E. LEONARD  
 MCCOY, MARY D.

NAVE, FLOYD  
 NORSTOG, KNUT J.  
 PADDOCK, ELTON F.  
 PLAINE, HENRY L.  
 POPHAM, RICHARD A.  
 PUTNAM, L. S.  
 RANDALL, CHARLES A.  
 READ, PHYLLIS  
 REDETT, ROBERT B.  
 ROTHMUND, PAUL  
 SCHEAR, E. W. E.  
 SMITH, GUY-HAROLD  
 VERDUIN, JACOB

## REPORT OF THE SEVENTIETH ANNUAL MEETING OF THE OHIO ACADEMY OF SCIENCE

The 70th annual meeting was held on the campus of the University of Cincinnati April 20, 21, and 22, 1961, the fifth to have been so located. Previous meetings of the Academy held in Cincinnati were in 1895, 1905, 1928, and 1939. A total of 685 persons registered for the meetings of the senior division. The local committee on arrangements, under the chairmanship of Dr. William A. Dreyer, did an outstanding job in providing facilities to make this meeting a real success.

The Executive Committee, the Council, and the Committee on Election of Fellows met on April 20; their reports are found elsewhere in this Annual Report. On Friday, April 21, the eleven sections met with the presentation of some 150 research papers and symposia. Field trips were conducted by the sections of Geology and of Geography.

Throughout Friday the Junior Division sponsored the thirteenth Annual State Science Day, in which 657 projects were entered by nearly 700 students from the high schools of the state. Sectional meetings of the Senior Division were suspended at 11:00 AM to permit viewing and judging of these exhibits.

The annual banquet and business meetings were held Friday evening in the Great Hall of the Union, with Dean Charles K. Weichert serving as toastmaster. President Walter C. Langsam extended official greeting from the University of Cincinnati, and the response was made by Dr. Dwight DeLong, most recent past-president of the Academy. Dr. Glenn H. Brown, President of The Ohio Academy of Science, delivered the presidential address, "Structure of Liquids and Solutions." Professor G. G. Acker, Director of the Junior Academy, announced awards to outstanding high school teachers as well as the Kreckler awards to seven schools. At the business meeting, officers were elected for the coming year, as listed at the opening of this report. A constitutional amendment, changing the title of the Executive Secretary of the Junior Division to Director of the Junior Division, was unanimously approved. Forty members of the Academy were announced as newly elected Fellows. Their names and sectional affiliations follow:

A—RICHARD DALE ALEXANDER	C—HEBER D. LESSIG
C—RICHARD J. ANDERSON	B—PERCY LANE LILLY
J—JOHN EDWARD AUGHANBAUGH	K—MORLEY GORDON MCCARTNEY
B—DWIGHT H. BERG	A—W. C. MYSER
A—ROBERT BIERI	B—J. GORDON OGDEN, III
A—A. S. BRADSHAW	J—HAYDEN WHITNEY OLDS
A—ALFRED CARTER BROAD	H—JOSEPH A. RALSTON
A—JOSEPH HARVEY CAMIN	A—ROY WILSON RINGS
B—TOM S. COOPERRIDER	D—HENRY ZODOC SABLE
G—JOSEPH MILTON DENHAM	C—GEORGE M. SCHAFER
A—RAY THOMAS EVERLY	C—DAVID M. SCOTTFORD
J—OLLIE EDGAR FINK	H—NAOMI SNYDER
C—GEORGE J. FRANKLIN	G—HOWARD A. TANNER
A—JAMES C. GRAY	A—CHARLES A. TRIPLEHORN
G—HERSCHEL G. GROSE	A—ANDREW ALBERT WEAVER
A—HOWARD WILLIAM HINTZ	H—WILLIAM WEAVER
C—JOHN R. HYLAND	A—HOWARD VINCENT WEEMS, JR.
C—WILLIAM F. JENKS	G—BRUCE V. WEIDNER
A—EMERSON KEMSIES	A—ROBERT W. WINNER
A—EDWARD J. KORMONDY	B—WARREN ARTHUR WISTENDAHL

Respectfully submitted,

GEORGE W. BURNS, *Secretary*

#### REPORT OF THE EXECUTIVE COMMITTEE AND THE COUNCIL

The Executive Committee met June 11, August 26, September 24, October 29, December 2, 1960, January 21, 1961, February 25, April 4, and April 20; the Council met December 2 and April 20.

1. *Meetings of the Executive Committee.*—In addition to much routine business incident to the operation of the Academy and planning long-range programs, the Executive Committee: authorized subscription to a news clipping service on an experimental basis, received a \$23,000 grant from the National Science Foundation for the second year's operation of the Visiting Scientists' Program, appointed Dr. W. A. Manuel of Delaware, Ohio, for a second year as Director of that program, with the devoted work of the Ohio Flora Committee saw the publication of "Woody Plants of Ohio," effected sectional affiliation with the Ohio College Association, received a grant of \$15,000 from the Kettering Foundation toward 1961 operation of the Academy, and eliminated the \$1.50 half-year dues for new members.

2. *Meetings of the Council.*—Reports were made by all officers and most committee chairmen; their annual reports are presented in the pages following.

Council approved presentation to the membership of a constitutional amendment changing the title of the Executive Secretary of the Junior Division to Director of the Junior Division, and approved a recommendation of the Executive Committee that the annual dues be changed to \$6.00 effective January 1, 1962 (student dues remaining at \$3.00).

Respectfully submitted,

GEORGE W. BURNS, *Secretary*

#### REPORT OF THE EXECUTIVE SECRETARY

During the twenty-three months of operation of the Central Offices of the Academy in Columbus, individual membership of the Academy has grown from approximately 1100 to more than 1800 members. In 1959, the Academy listed 29 Corporation-Institution members which were at the time paying annual dues of \$25.00. As of May 1, 1961, the Academy has 25 Corporation-Institution members which pay \$100.00 per year. These members are listed annually in the November issue of The Ohio Journal of Science.

The Academy has received from the National Science Foundation a \$7,000 grant for the operation and development of Science Days in Ohio and a \$23,000 grant for the second year of operation of the highly successful Visiting Scientists Program.

Respectfully submitted,

KENNETH B. HOBBS, *Executive Secretary*

# REPORT OF THE TREASURER FISCAL YEAR 1960

## EXHIBIT A. COMPARATIVE STATEMENT OF FINANCIAL CONDITION As of December 31, 1960 and 1959

### ASSETS

	1960	1959	Increase (Decrease)
<b>CURRENT EXPENSE FUND:</b>			
Cash in Huntington National Bank.....	\$ 7,083.00	\$ 887.97	\$ 6,195.03
Savings accounts:			
Buckeye Federal Savings & Loan Association.....	0.00	5,000.00	(5,000.00)
Franklin Federal Savings & Loan Association.....	0.00	5,000.00	(5,000.00)
Ohio Federal Savings & Loan Association.....	0.00	5,000.00	(5,000.00)
Park Federal Savings & Loan Association.....	0.00	1,000.00	(1,000.00)
Investments:			
Modern Finance Co. certificates.....	20,000.00	8,000.00	12,000.00
Aldens, Inc. stock.....	5,018.88		5,018.88
Aldens, Inc. bonds.....	908.00		908.00
American Telephone & Telegraph Co. stock.....	300.00		300.00
BancOhio stock.....	566.64		566.64
Economy Savings & Loan Co. certificates.....	15,000.00		15,000.00
<b>Total Current Expense Fund.....</b>	<b>\$48,876.52</b>	<b>\$24,887.97</b>	<b>\$23,988.35</b>
<b>RESEARCH FUND:</b>			
Cash in Huntington National Bank.....	0.00	213.08	(213.08)
U. S. Savings bonds—Series G.....	0.00	200.00	(200.00)
BancOhio stock.....	0.00	541.44	(541.44)
First Federal Savings & Loan Association.....	0.00	1,478.93	(1,478.93)
<b>Total Research Fund.....</b>	<b>\$ 0.00</b>	<b>\$ 2,433.45</b>	<b>\$(2,433.45)</b>
<b>TOTAL ASSETS.....</b>	<b>\$48,876.52</b>	<b>\$27,321.42</b>	<b>\$21,555.10</b>

### LIABILITIES AND NET WORTH

<b>LIABILITIES:</b>			
Dues collected in advance.....	\$ 0.00	\$ 45.00	\$ (45.00)
Research Fund.....	2,741.95	2,433.45	308.50
National Science Foundation grants:			
# 9232.....	8,846.14	6,467.62	2,378.52
9714.....	2,118.28	2,118.28	0.00
12396.....	17,117.44		17,117.44
12442.....	3,875.92		3,875.92
<b>Total Liabilities.....</b>	<b>\$34,699.73</b>	<b>\$11,064.35</b>	<b>\$23,635.38</b>
<b>NET WORTH:</b>			
Current Expense Fund.....	14,176.79	16,257.07	(2,080.28)
<b>Total New Worth.....</b>	<b>14,176.79</b>	<b>16,257.07</b>	<b>(2,080.28)</b>
<b>TOTAL LIABILITIES AND NET WORTH.....</b>	<b>\$48,876.52</b>	<b>\$27,321.42</b>	<b>\$21,555.10</b>

## EXHIBIT B. STATEMENT OF REVENUE AND EXPENDITURES For the year ended December 31, 1960

## CURRENT EXPENSE FUND:

## REVENUE:

Membership dues:		
Individuals.....	\$ 4,234.50	\$
Corporations and institutions.....	2,047.00	6,281.50
Gifts:		
Kettering Foundation.....	15,000.00	
Others.....	440.75	\$15,440.75
Junior Academy.....		1,644.90
Interest earned:		
Savings accounts.....	282.00	
U. S. Savings bonds.....	2.50	
U. S. Treasury bills.....	8.87	
Modern Finance Company certificates.....	370.00	
F.N.M.A. bonds.....	883.12	1,546.49
Other income:		
Exhibit space rental.....	175.00	
Special paper sale.....	7.71	
Dividends from stock.....	19.25	
N.S.F. Grants—administration fee.....	1,486.71	1,688.67
TOTAL REVENUE.....		\$26,602.31

## EXPENDITURES:

Postage.....	495.93	
Brochures and programs.....	848.74	
Engraving and printing.....	1,030.95	
Office supplies and expense.....	2,698.17	
Advertising.....	210.25	
Telephone and telegraph.....	566.60	
Salaries—executive secretary and clerical.....	12,152.00	
Payroll taxes.....	246.06	
Part-Time labor and services.....	749.31	
Travel expense.....	439.09	
Speakers.....	75.00	
Outstanding teacher awards.....	56.00	
Honorariums.....	400.00	
Auditing expense.....	75.00	
Academy conference and meeting.....	74.00	
Newsletter.....	2,005.94	
Ohio Journal of Science.....	3,441.23	
Junior Academy.....	337.90	
Office equipment purchased.....	2,280.42	
Total Expenditures.....		28,682.59

EXCESS OF EXPENDITURES OVER REVENUES..... (2,080.28)

## RESEARCH FUND:

## REVENUE:

American Association for Advancement of Science grant.....	\$ 650.00	
Interest earned.....	150.00	
Dividend income.....	58.50	
Total Revenue.....	\$ 858.50	

## EXPENDITURES:

Robert W. Long—grant.....	\$ 200.00	
T. Richard Fisher—grant.....	200.00	
Janet P. Toy—grant.....	150.00	
Total Expenditures.....		550.00

EXCESS OF REVENUE OVER EXPENDITURES.....\$ 308.50

Respectfully submitted,

ROBERT M. GIESY, *Treasurer*

## REPORT OF THE ACADEMY LIBRARIAN

	1959-60	1960-61
FOREIGN EXCHANGES.....	419	410
DOMESTIC EXCHANGES.....	129	135
Grand Total.....	548	545
NEW EXCHANGES:		
Foreign.....	17	12
Domestic.....	2	9
DROPPED:		
Foreign.....	20	3
Domestic.....	7	3
SPECIAL PAPERS SOLD (Number).....	?	43
Revenue.....	\$5.15	\$46.33

Monies from the sale of "Special Papers" were turned over to Dr. Robert Giesy, Treasurer of the Academy.

Respectfully submitted,

(MRS.) MARY D. MCCOY, *Librarian*

REPORT OF THE JOINT ADMINISTRATIVE BOARD OF  
THE OHIO JOURNAL OF SCIENCE

The annual meeting of the Joint Administrative Board of The Ohio Journal of Science was held at Columbus on April 8, 1961. The meeting was called to order by Board Chairman Gambill. Present were Dr. R. L. Bates and Dr. R. H. Davidson, representing The Ohio State University; Dr. W. G. Gambill, representing The Ohio Academy of Science; as well as Dr. H. L. Plaine and Dr. R. A. Popham of The Ohio Journal of Science staff. Dr. Warren P. Spencer was unable to attend.

Minutes of the last meeting were approved as read.

Dr. W. G. Gambill was re-elected chairman of the Board for the year 1961-62.

The report of the Business Manager was approved as read. This report, which accompanies these minutes, is mainly in the form of a financial statement for Volume 60. Dr. Popham reported that (1) circulation of the Journal increased to 2,454 during the year as compared to 2,030 a year ago, (2) the total average cost per page for publishing the Journal in 1960 increased to \$20.00, as compared to \$17.55 a year ago, and that (3) the Journal will probably be able to operate during 1961 on its regular sources of revenue.

The report of the Editor, Dr. Plaine, was approved as read. A copy of this report is attached to these minutes. The Editor indicated that the Journal is about 3 months behind in the publication of papers. This delay in the publication of papers is considered to be somewhat less than optimum, and represents an opportunity for exceptionally prompt publication of papers.

The following staff members were re-elected for the year 1961-62; Dr. Plaine, Editor; Dr. Popham, Business Manager. After his appointment, Dr. Plaine announced the reappointment of Dr. T. H. Langlois as Book Review Editor. Dr. Plaine indicated his willingness to serve as editor at least until April 1, 1963.

During a period of discussion, it was decided that the present reprint order forms, which have been a constant source of confusion, should be revised by the Business Manager and submitted by mail to members of the Joint Administrative Board for their approval. Due to a considerable increase in the amount of work in the Business Manager's office, resulting from a rapid increase in circulation of the Journal, the Business Manager was authorized to procure supplementary help as needed, the help to be paid for on an hourly wage basis. The Business Manager was also authorized to use his discretion in loaning sums of money, for short periods of time, to the Treasurer of The Ohio Academy of Science on an interest-free basis.

The Editor was granted permission to print the index for each volume in the first issue of the following volume. This represents a change from the present procedure of printing the index in the last issue of each volume. The Editor was also granted permission to index all new species under one index heading (New Species). This represents a departure from the present procedure of indexing each new species alphabetically in the general index. The Board granted the Editor authority to require abstracts from authors contributing to the Journal. It was stressed in the discussion concerning this authorization that the abstract must be meaningful and in specific terms in order that a person reading the abstract may obtain the principle ideas set forth in the paper. It was further agreed that if the Editor requires abstracts of authors, he should be critical of these abstracts, and if they do not meet a high level excellence, they should be returned to the authors for revision.

The matter of the need for an Associate Editor was discussed at length. It was pointed out that in cases of emergency, death, illness, or excessive workloads, the Journal, at the present time, is left with no one who is sufficiently familiar with the procedures and state of affairs in the Editor's office to take over his duties. The Board agreed that an Associate Editor should work under the direction of the Editor participating in all of the editorial chores, in order that he may have full knowledge of the status of each manuscript and the stage of development of each issue of the Journal. At the conclusion of this discussion, the members of the Joint Administrative Board agreed that an Associate Editor should be appointed. Dr. Gambill instructed all members of the Board to begin at once to look for a man who has the capabilities and desire to fill such an office.

There being no further business, the Board adjourned.

Respectfully submitted,

RICHARD A. POPHAM, *Secretary of the Board*

### THE OHIO JOURNAL OF SCIENCE

VOLUME 60—FISCAL YEAR 1960

#### BALANCE SHEET

	Vol. 59 Fiscal Year 1/1/59 12/31/59	Vol. 60 Fiscal Year 1/1/60 2/12/61
<b>RECEIPTS:</b>		
Bank balance at beginning of period.....	\$ 3,230.08	\$ 2,686.20
O.S.U.—paid for subscriptions.....	2,750.00	3,000.00
O.A.S.—paid for subscriptions.....	2,150.00	2,292.50
Non-members—paid for subscriptions.....	739.00	755.00
Separate numbers, volumes and reprints sold.....	430.36	759.60
50 year index sold.....	15.00	0.00
O.A.S.—paid ½ cost of plates.....	227.99	429.35
O.A.S.—paid for annual report.....	191.16	219.38
Miscellaneous.....	1,062.60	187.80
Advertisements.....	406.38	637.61
O.A.S.—gift.....	0.00	500.00
	<hr/> \$11,202.57	<hr/> \$11,467.44
<b>EXPENDITURES:</b>		
Spahr and Glenn—printing O.J.S.....	\$ 5,824.57	\$ 6,174.96
Engraving—plates.....	858.70	917.07
Postage and express.....	248.34	278.90
Labor.....	283.50	4.75
Editor's office.....	0.00	338.27
Office expenses and bank charges.....	26.77	28.44
Advertising of the O.J.S.....	0.00	15.00
Reprints.....	53.37	74.65
Mailing envelopes.....	0.00	360.05
Refunds.....	0.00	6.50
Miscellaneous.....	1,221.12	42.45
Bank balance at end of period.....	2,686.20	3,226.40
	<hr/> \$11,202.57	<hr/> \$11,467.44

### THE OHIO JOURNAL OF SCIENCE

REPORT OF THE EDITOR OF VOLUME 60, 1960  
to the Joint Administrative Board

Volume 60 of The Ohio Journal of Science contained 408 pages, of which 344 pages were devoted to 49 scientific papers in 9 areas (as designated by sections of The Ohio Academy of Science); 21 pages were devoted to affairs of the Academy; 16 pages to advertising; and 27 pages to announcements, book notices, the index and table of contents, and routine journal format. Thirty-two book notices were published during the year. The Symposium, "Problems Resulting from Population Growth," sponsored by the Conservation Section, was published in the July issue. Thirty per cent of the published papers originated at The Ohio State University; forty-one per cent were from other sources within the state; and twenty-nine per cent came from sources outside Ohio.

We wish to thank the various members of the Academy, as well as our several colleagues who are not members, for their generous service as reviewers or referees.

Respectfully submitted,

HENRY L. PLAINE, *Editor-in-Chief*

Distribution by Field of Articles Published in 1960

Field	No. of articles	Total pages	Percent
Anthropology and Sociology	1	10	2.9
Chemistry	6	40	11.6
Conservation	2	40	11.6
Geology	7	63	18.3
Physics and Astronomy	2	21	6.1
Plant Sciences	11	61	17.8
Science Education	1	3	0.9
Zoology	18	98	28.5
Genetics	1	8	2.3
	49	344	100.0
Other			
Notices			
Academy	7	6	
Book	32	6	
Annual Report of Ohio Academy of Science		15	
Table of Contents		4	
Index		2	
Advertising		16	
Journal Format		15	
Number of pages		64	
Total number of pages in volume 60:		408	

REPORT OF THE DIRECTOR OF PUBLIC RELATIONS

Although the results have not been tabulated at this time, and cannot be until the end of the year, perhaps the most important thing done in this field this year was a subscription to a news clipping service. This should provide valuable information on the type and timing of news releases.

Perhaps of equal importance has been the work of the Executive Secretary, Kenneth Hobbs. Most of the contacts during the year have been made by him, not only with news outlets, but with any person or organization interested in the Academy.

Although news sources are interested in the work of the Academy, we cannot supply them with information if we have none. This year only 4 of the 11 sections supplied the Director with abstracts, for example. It is up to the members, and particularly to the officers of the Academy, to supply possible news material whenever possible.

Although the present Director has allowed his name to be presented for re-election, he is forced to resign at the end of the present school year due to other pressures. The four years in this office have been enlightening and encouraging in terms of progress within the Academy as a whole. As far as the publicity for the annual meeting is concerned—and this, along with serving on the Executive Committee, is the major job of the Director of Public Relations—a procedure has been established so that any successor will at least have a form to follow until he gets his feet on the ground.

JOHN R. COASH, *Director of Public Relations*

REPORT OF THE EXECUTIVE SECRETARY OF THE JUNIOR ACADEMY  
THE OHIO ACADEMY OF SCIENCE

Junior Academy activities for the year 1960-61 were supported in part by a grant in the amount of \$6800 received from the National Science Foundation. Funds from this grant were used to augment services provided by the Central Office and by the Executive Secretary, Junior Academy, to Academy sponsored programs throughout the state. In addition the Executive Secretary, Junior Academy, was provided with secretarial assistance without which efficient operation would have been impossible. Communication with subsidiaries (districts) and affiliates (local science days) was improved by numerous visitations and an increased number of mailings. An attempt to establish uniformity in judging criteria and procedures was begun by furnishing standard judging cards to all affiliated science days.



Data have been accumulated for a Directory of Science Days in Ohio. The data will be published in mimeograph form about July 1, 1961.

A Handbook of Science Days is scheduled to go to press about September 1, 1961.

Partial support for 1961-62 operations has been granted by the National Science Foundation.

#### SECTION I ORGANIZATION

A. *Mohican District*: The first annual District Science Day was held on April 8 at Ashland College under the direction of Dr. Milton Puterbaugh, Chairman of the Chemistry Department and Mr. James McDowell, Ashland High School. Five hundred (500) students from 29 schools participated in this event. Strong active support given the committee by President Glenn L. Clayton and the administration, faculty and students of Ashland College contributed substantially to the initial success of the new district.

B. *West District*: Wittenberg University asked to be relieved of responsibility for District Science Day and a new district center was established at Central State College, Wilberforce. Dr. E. O. Woolfolk, Chairman of the Chemistry Department and Karl Braun, Keifer Junior High School, Springfield served as councilmen for the district. Enthusiastic participation by Dr. Woolfolk and members of the administration, faculty and student body of Central State College and the generous hospitality of President Charles Wesley aided greatly in the efficient operation of the first science day.

C. *Central District*: District Science Day was returned to the Ohio State University campus after three years at the State Fairgrounds. Councilmen, Dr. Earle Caley, Department of Chemistry, and Mr. Robert McBurney, Worthington High School were aided by active university and high school committees. President Novice Fawcett authorized the use of The Ohio State University Fieldhouse for the event. Ample space was provided for the six hundred (600) projects chosen from the top ranking students at the local science days.

##### D. *Special Committees*:

A. Dr. A. G. McQuate, Department of Biology, Heidelberg College is serving as chairman of the committee appointed to study the problem of selection of outstanding teachers. The committee will report its findings at the October 1961 meeting of the Junior Academy Council.

B. The committee on judging, Robert E. McKay, Bowling Green State University, chairman, will present a formal report of its findings to the October meeting of the Junior Academy Council.

#### SECTION II AFFILIATED LOCAL SCIENCE DAYS

The 126 affiliated local science days represents an increase of 45 during the past year. More than 300 schools are represented in these organizations and include participation by all grades from kindergarten through 12th. Reports have been received from 82 of the affiliates representing 201 schools. These reports indicate that more than 88,000 persons observed projects presented by 12,669 students.

#### SECTION III DISTRICT SCIENCE DAYS

More than 6100 students from 548 schools presented projects at the ten District Science Days.

Several procedures for reducing the number of participants were adopted by the individual district planning committees. These procedures include:

- A. 7th or 8th grade projects not permitted
- B. Joint projects not permitted
- C. School quotas for 7, 8, and 9th grades
- D. School quotas for all grades
- E. Compulsory elimination at local school or county level.

#### DISTRICT SCIENCE DAY DATA

	No. of Projects	No. of Students	No. of Schools
March 25, East, Muskingum College	269	285	25
West, Central State College	536	612	56
April 1, Northeast, Kent State University	770	770	90
Central, Ohio State University	621	625	71
April 8, Southeast, Ohio University	519	574	41
North Central, Heidelberg College	971	971	66
Southwest, Miami University	556	671	72
Northwest, Bowling Green State U.	818	818	69
North, The Defiance College	244	244	20
Mohican, Ashland College	500	500	29
	5804	6070	548

## SECTION IV STATE SCIENCE DAY

The planning base for the 1961 State Science Day at the University of Cincinnati was 640 projects (600 to established districts and 40 to Mohican District). Quotas were based upon the number of participants (9-12 grades) at the 1960 District Science Days. The 657 registered projects will be exhibited in the field house (581) and in the Chemistry Building (76). Student papers will be read at an open meeting in the Biology Building. Judging will be accomplished at 11:00 with sectional meetings being suspended for that purpose.

## SECTION V OHIO ACADEMY OF SCIENCE NEWS

Mrs. Clara Kenney, Chillicothe, served as editor for Volume XIII of the Ohio Academy of Science News. Four issues containing a total of 32 pages were printed and distributed to more than 10,000 readers. The increased space was necessary in order to provide adequate coverage for the Visiting Scientist Program. An attempt to secure advertising for the News was not productive as only one advertisement was published. Scattered reports indicate increasing interest in this publication.

## SECTION VI SCHOLARSHIP TESTS

Mr. William Zeitler, Columbus, has announced that new tests will be administered by the testing service of the University of Cincinnati.

## SECTION VII OUTSTANDING TEACHER AWARDS

The following have been selected to receive an outstanding teacher award in their respective districts:

Southeast	—Ralph R. Walker, Logan High School, Logan
East	—Sister Mary Veronica, Sacred Heart School, Coshocton
Northeast	—Theodore Cunningham, Lakewood High School, Lakewood
North Central	—Floyd R. West, Sulphur Springs High School, Sulphur Springs
Central	—John R. Coontz, Marion-Franklin High School, Columbus
Southwest	—Sister Mary Joseph, RSM, Mother of Mercy High School, Cincinnati
West	—Frederick L. Dafler, Franklin-Monroe High School, Pittsburg
Northwest	—George Clark, Archbold High School, Archbold
North	—did not select
Mohican	—not reported

## SECTION VIII SCHOOL AWARDS

Frederick H. Kreckler Awards each consisting of an engraved plaque and a cash stipend of \$150.00 will be presented to the following schools:

Southeast	—Jackson High School, Jackson
East	—no qualified applicant
Northeast	—Austintown-Fitch High School, Youngstown
North Central	—Marion Catholic High School, Marion
Central	—University High School, OSU, Columbus
Southwest,	—Eaton Exempted Village School, Eaton
West	—Keifer Junior High School, Springfield
North	—Napoleon High School, Napoleon
Northwest	—Notre Dame Academy, Toledo
Mohican	—not organized in 1960

## SECTION IX STATE SCIENCE DAY AWARDS

Plaques signifying excellence of projects presented at the 1960 State Science Day were awarded to:

Eaton Exempted Village School (Southwest)  
Fairborn High School (West)  
Bryan High School (North)

Registrations for the 1961 State Science Day indicate that 32 schools are eligible to compete for the award.

## SECTION X PERSONNEL

The following changes in personnel on the Council of the Junior Academy were made:  
District Councilmen:

Southeast	—C. I. McClure, Marietta High School
East	—W. Hughes Barnes, Dept. of Geography and William Adams, Dept. of Biology, Muskingum College
Northeast	—Miss Betty Olmstead, Northfield-Macedonia High
Central	—Dr. Earle Caley, Dept. of Chemistry, OSU and Robert McBurney, Worthington High School

Southwest—Mrs. Lillian McElroy, Mariemont High School  
 West —Dr. E. O. Woolfolk, Dept. of Chemistry, Central State  
 Northwest—Albert Siekeres, Fostoria High School  
 North —Mr. Robert Neff, Dept. of Physics, The Defiance College  
 Mohican —Dr. Milton Puterbaugh, Dept. of Chemistry, Ashland College  
 and Mr. James McDowell, Ashland High School

## SECTION XI MISCELLANEOUS

Owens-Illinois Glass Company, Toledo, donated 675 sets of souvenir glasses for distribution to State Science Day participants.

Executive Secretary Junior Academy and Mr. Floyd West of Sulphur Springs High School served as members of a panel on Junior Academies at the meeting of the A.A.A.S., in New York.

Executive Secretary Junior Academy served as advisor to the Toledo Science Day sponsored by the Toledo Technical Council and Toledo Engineering Society.

Respectfully submitted,

GERALD ACKER, *Executive Secretary*

## REPORT OF TRUSTEES OF THE RESEARCH FUND

FISCAL YEAR 1961—AS OF APRIL 7, 1961

## Receipts (1960):

Bank balance Jan 1, 1960.....	\$2,433.45
Interest income.....	150.00
Dividend income.....	58.50
A.A.A.S.....	650.00

Total receipts as of Dec. 31, 1960.....\$3,291.95

## Expenditures (1960):

Research grants.....	550.00
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Unexpended balance as of Dec. 31, 1960.....\$2,741.95

## Receipts (1961):

Bank balance Jan. 1, 1961.....	\$2,741.95
A.A.A.S.....	517.00

Total receipts as of April 7, 1961.....\$3,258.95

## Expenditures (1961):

Permanent Reserve Fund.....	\$2,000.00
Research grant, Eggleston (not used).....	100.00
Research grant—Dr. Percy L. Lilly, Non-woody Ranales, the Chenopodioles and Caryophyllales.....	200.00
Research grant—Edward J. Karlin, Ecological Study of Carnivorous Snails from Hawaii.....	150.00
Research grant—Joseph Bagshaw, Polymerization and Coacervation of Amino Acids Under Primitive Conditions.....	75.00
Research grant—Dr. Malcolm P. Weiss, Stratigraphy and Petrology of Flagstaff Limestone in Utah.....	400.00
Research grant—Dr. Paul S. Stokely, Effects of Growth Compounds on Reconstruction in Planaria.....	75.00

Total expenditures as of April 7, 1961.....\$2,975.00

Unexpended balance as of April 7, 1961.....\$ 283.95

Respectfully submitted,

H. V. KNORR, *Chairman*

## REPORT OF THE OHIO FLORA COMMITTEE

The Ohio State University Press announced the publication of "Woody Plants of Ohio" by Dr. E. L. Braun. The selling price is established at \$7.50. It is hoped that all Academy members will endeavor to aid the press in promoting the sale of this important contribution to the flora of Ohio.

Dr. E. L. Braun is making excellent progress on "Monocots of Ohio," the first of a series of proposed volumes dealing specifically with the flora of Ohio.

Although a great deal of progress has been made in other areas of the flora project, it cannot easily be reported here. Among the more obvious evidences of progress are as follows:

- 1) *Rosales* by William Gambill. This project will constitute a major contribution toward Volume II of the Ohio Flora.
- 2) Pteridophytes of Ohio by Dr. Tom Cooperrider is in progress.
- 3) *Compositae* of Ohio by Dr. R. W. Long and T. R. Fisher is in progress.
- 4) Several smaller projects are very promising. Mr. John Speer is well along on the *Asters* of Ohio. Mr. Wingo is working on the *Saxifragaceae* of Ohio. Mr. Hauser is working on the *Rubiales* of Ohio. These smaller projects will contribute greatly to the total effort of the committee.

Respectfully submitted,

T. RICHARD FISHER, *Chairman*

#### REPORT OF THE ACADEMY HISTORIAN

During the past year the Academy Historian has accomplished the following things: (1) A paper entitled, "The Summer Field Meetings of the Ohio Academy of Science (1892-1905)" was published in the September, 1960, issue of *The Ohio Journal of Science*. (2) A lecture on "George W. Dean and George J. Streater—Pioneer Naturalists of Portage County, Ohio" was given to the Portage County Historical Society in October, 1960. Another lecture scheduled for this same organization will be given in May, 1961, on "Some Pioneer Naturalists of Northeastern Ohio." Included in these two lectures is discussion of eight naturalists who were members of The Ohio Academy of Science during the first year of its operation (two charter members and two of the early officers). (3) Reports were read to the Section of Physics and Astronomy and the Section of Geography at the Antioch meeting, sketching the historical development of those sections. Similar reports will be given to the Sections on Chemistry and Science Education at the Cincinnati Meeting in April, 1961. (4) Membership data for the Academy have been compiled since the report of Alexander in 1943 (*Ohio Jour. Sci.* 41: 300). These are tabulated below. Total membership is an approximation since there are many variable factors. Totals in the files of different offices vary for a number of reasons and the number constantly changes, so that a total figure varies with the date on which the count is made. These approximations, however, gave a clear picture of the growth of the Academy.

##### *Honorary Membership*

(this type of membership was created in 1943 and is limited to five at any one time).

William H. Alexander 1943-1960	Edward L. Rice 1949-1960
Edwin S. Moseley 1943-1948	Frank J. Wright 1949-1954
Herbert Osborn 1943-1954	Ethel M. Miller 1955
Frederick O. Grover 1947	Frederick Kreckler 1955

##### *Life Members*

Ralph Davidson	S. Charles Kendeigh
John B. Gerberich	Floyd A. McClure
J. Arthur Herrick	Mildred Pfeister
David T. Jones	

##### *Approximate Total Membership*

1941-520	1948- 850	1955-1223
1942-550	1949- 930	1956-1196
1943-560	1950-1080	1957-1172
1944-570	1951-1040	1958-1272
1945-587	1952-1200	1959-1230
1946-570	1953-1200	1960-1537
1947-700	1954-1160	

Respectfully submitted,

RALPH W. DEXTER, *Chairman*

#### REPORT OF THE COMMITTEE ON INSTITUTION AND CORPORATION MEMBERS

The number of Institution and Corporation Memberships at the time of the Annual Meeting in Cincinnati was 24; as of May 1, 1961 this number has increased to 25. Each of these members is paying \$100 per year.

In 1959, the Academy listed 29 Institution and Corporation Members who were at that time paying \$25 annual dues. The membership of this type was only 19 in 1960, when the higher dues went into effect.

A list of the Institution and Corporation members in good standing is printed in each year's November issue of *The Ohio Journal of Science*.

During the latter part of 1960 and early in 1961, over 250 personal letters were mailed to businesses, industry, and foundations of scientific interest in the State of Ohio. The Com-

mittee appreciates greatly the help of the office of the Executive Secretary in these mailings. These letters solicited not only memberships, but also grants, gifts, and contributions toward the different activities of the Academy. The returns from this campaign were very low, and indicated strongly that personal contacts and visits by the members of the Academy must supplement our direct mailings. The help of the members in this matter is urgently requested, although the Committee will continue using direct mail techniques since they serve as a worthwhile public relations device.

It is strongly felt by the Committee that an effort should be made to at least double the present number of Institution and Corporation Memberships in the Academy.

Respectfully submitted,

P. ROTHMUND, *Chairman*

## REPORT OF THE COMMITTEE ON SCIENCE TEACHER CERTIFICATION

The Committee on Science Teacher Certification met in the Trustee's Room of the Battelle Memorial Institute in Columbus, Ohio, on Saturday, April 15, 1961 at 9:30 AM.

The Committee reconsidered its preliminary recommendations of February 25th in the light of: Dr. Ronneberg's Communication of March 6; discussions with professional educators; and the "Guidelines on State Teacher Certification," which were distributed by Mr. May of the State Office.

As a consequence of these studies the Committee now makes the recommendations which follow and asks that the Council and Executive Committee of the Academy take the steps necessary to encourage and implement their adoption.

### COMMITTEE RECOMMENDATIONS

#### I. CERTIFICATION REQUIREMENTS FOR SECONDARY SCIENCE TEACHERS.

##### A. *Provisional Certificate* to teach Secondary Science in the State of Ohio

- (1) Minimum requirements for a Science Major Certificate.
  - a. Bachelor's degree.
  - b. At least a 24 semester hour major in one of the areas of science.
  - c. At least 12 semester hours in a related area to the major.
  - d. At least 8 semester hours in each of the three areas of science and mathematics not covered in b & c (chemistry, physics, biology, earth science and mathematics)

These requirements represent a total of 60 semester hours in science and mathematics.
- (2) That all existing science options for certification be eliminated and replaced by the Science Major category.
- (3) That no teacher be certified to teach more than his major plus one additional subject. A science major meeting the requirement of (1) would be qualified to teach general science.

##### B. *Permanent Certificate* to teach Secondary Science in the State of Ohio.

- (1) That requirements for the permanent certificate include in addition to the requirements for the Provisional Certificate, *thirty* (30) semester hours of work beyond the Bachelor's degree at *least half* of which must be in *subject matter areas* pertaining to the teaching field.

#### II. CERTIFICATION REQUIREMENTS FOR ELEMENTARY TEACHERS.

##### A. That the certification include the following minimums:

- (1) Six (6) semester hours of biological science
- (2) Six (6) semester hours of physical science
- (3) Six (6) semester hours of mathematics.

#### III. CERTIFICATION REQUIREMENTS OF ALL TEACHERS.

##### A. That in the near future all teachers certified regardless of classification must have the following as minimums in their training.

- (1) Six (6) semester hours of biological science
- (2) Six (6) semester hours of physical science
- (3) Six (6) semester hours of mathematics.

#### IV. OTHER COMMITTEE RECOMMENDATIONS.

- A. That a new Committee of the Academy be created and designated as the OAS Committee on Science Education. That, with the formation of this new Committee the present one on Teacher Certification be discharged but that some of that committee's members (excluding the chairman) be included on the new Committee roster. There are at present many areas of science education which need the Academy's attention. These include: improvement of science laboratory facilities and equipment; improvement of teacher loads and elimination of time consuming non-teaching duties; and improvement of professional orientation of science teachers.

B. That the Academy pass a resolution asking for the following specific improvements regarding science teaching in Ohio Secondary Schools:

- (1) That no science teacher be given a load requiring more than two different class preparations.
- (2) That each science teacher have scheduled one free period per day for laboratory or demonstration preparation.
- (3) That every science teacher be granted time off (and if possible expenses) to attend at least one *scientific* meeting per year.

The school boards and high school administrations should be made cognizant of the importance and rapidly changing nature of science which requires the alert teacher to read, attend meetings etc. in effort to keep updated. No other area of the curriculum can match this need. In addition, the large investment in science laboratories and science equipment should not be neglected because the teacher lacks time to plan for their utmost utilization. His schedule should allow time for proper laboratory planning and the teacher held accountable for doing a creditable job with the facilities available.

The Committee feels that the general attitude of the public toward science education is now such that the Academy should move with dispatch and vigor to implement the changes suggested in this report.

Respectfully submitted,

J. H. BUCKINGHAM, *Chairman*

#### REPORT OF THE GOVERNOR'S ADVISORY COMMITTEE

*Organization:* The Committee was organized by letter during January, 1961. It is kept small (5 members) and consists solely of ex-presidents of the Academy.

A first meeting was held March 4, 1961. Only preliminary discussion has been accomplished although some contacts for advice were made in October 1960 and January 1961.

*Progress:* The Committee invites comments. It is felt that science education in Ohio is still the most critical field of concern although research and atmosphere for scientists are important. A list of contacts through the new Department of Industrial and Economic Development has been set up. It looks as though one man rather than a committee might serve most effectively in advisory capacity to the Governor if a need is established. He might be selected by and be responsible to a commission of 5 or 7. This must be non-political and with Academy sanction. The advisor will need a budget and should probably, therefore, be within one state department. Advice could be channeled on any subject through the Academy office.

Respectfully submitted,

RICHARD P. GOLDTHWAIT, *Chairman*

#### REPORT OF THE RESOLUTIONS COMMITTEE

Be it resolved that the members of The Ohio Academy of Science express to the Administration of The University of Cincinnati, to Dr. William Dreyer, chairman of the local committee on arrangements, and to the several members of his committee, their appreciation of the excellent facilities and for the thoughtful hospitality which have contributed so greatly to the success of this the Seventieth Meeting of the Academy.

Respectfully submitted,

KENNETH L. KELLEY, *Chairman*

#### REPORT OF THE NECROLOGY COMMITTEE

In alphabetical order there follows a listing of the deaths that have occurred in the membership of The Ohio Academy of Science in the period April, 1960 to April, 1961.

Respectfully submitted,

J. T. MADDOX, *Chairman*

**Dr. Leon Elkanah Smith**, 66, Henry Chisholm professor of physics at Denison University since 1928 and president of the Granville Board of Public Affairs, died at 7 AM Sunday, January 22, 1961 in the Veterans Hospital in Dayton, Ohio, where he had been a patient for six weeks.

Death of a heart attack was unexpected, although he had been in failing health the past few months with arthritic complications. He had been unable to teach since last October.

Born June 16, 1894, in Kemper, Ill., he was the son of Jacob E. and Elizabeth (Smith) Smith. In 1908 the family moved to Cherryvale, Kansas and in 1912 Dr. Smith was graduated from high school there.

He taught rural school and served as principal before enrolling at Ottawa University in Kansas. He earned his bachelor of science degree there in 1919 after returning from two years military service with the 130th Field Artillery, 35th division of the AEF, World War I. Dr. Smith saw action in several major battles in France.

After one term of graduate study at the University of Chicago, he was appointed instructor in physics at the University of Pennsylvania where he remained from 1920 to 1928, receiving his Ph.D. degree in 1926.

During World War II, he was in charge of the expanded physics department at Denison University.

Surviving are his widow, the former Anna Kuhn, whom he married in Philadelphia, Pa., June 7, 1922; a daughter, Mrs. Donald J. Bowers, Columbus; a son, Robert D. Smith, Cleveland; also six grandchildren; one sister, Mrs. Fred Brothers of Cherryvale, Kans.; and one brother, Chalmer O. Smith, Chicago.

At Granville, Dr. Smith served on the Board of Public Affairs for 18 years and was active in Boy Scout work. He had been a member of the Licking County Scout Council and held the Silver Beaver award and was superintendent of the Baptist Sunday School.

He had been president of the Sigma Xi Club of Denison this year and also held memberships in the American Association for the Advancement of Science; Acoustical Society of America; Ohio Academy of Science; American Association of Physics Teachers; Acacia Fraternity, Masonic Lodge; the Valley of Columbus Consistory; American Legion, American Association of University Professors, and was secretary-treasurer of the Ohio section of the American Physical Society.

Funeral services were held in Rhoades Chapel of the First Baptist Church in Granville with burial in the College Cemetery.

**Dr. James F. White**, 61, Assistant Professor in the chemistry department of Marietta College, died Saturday at 9:10 AM at Marietta Memorial Hospital. His home was at 134 Warner Street.

He was born August 20, 1899, at Berea, a son of the late Rowland and Lura Brown White. In 1923, he married Ruth E. Hoddinott, who survives with one son and two daughters: Dr. George R. White of Long Island, New York; Mrs. Robert A. Shogren of Villa Park, Illinois; and Mrs. Robert I. Moe of Wauwatosa, Wisconsin. There are five grandchildren, Janet, Barbara, and James Shogren and Jennie and Warren Moe. One brother survives, Dr. Dean R. White of Colonia, New Jersey.

Dr. White, was a graduate of Baldwin Wallace College. He received his master's degree and his doctorate degree at Columbia University. He was a veteran of World War I, a member of Sigma Xi Fraternity, the American Chemical Society, The Ohio Academy of Science, the First Methodist Church, the Official Board of the Church, and was chairman of the Commission on Education.

In the summer, he was employed as a ranger naturalist for the National Park Service at the Petrified Forest at Holbrook, Arizona. For 21 years he had been industrial research chemist for the Matheison Chemical Corp. at Niagara Falls. For three years he did research work for Gerber Baby Foods under the direction of the Engineering Experiment Station at Michigan State University and was later chemistry instructor at McMurray College at Abilene, Texas.

Burial was in Mound Cemetery, Marietta.

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